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ABSTRACT

This report provides and analyzes financial statistics on physical plant assets (land, buildings, and equipment) and institutional indebtedness on physical plants in institutions of higher education for fiscal years 1982, 1983, and 1984. The data come from the "Financial Statistics of Institutions of Higher Education" survey conducted annually by the Center for Education Statistics. Over 3,200 2- and 4-year institutions from all 50 states completed the survey each year, a response rate of over 85 percent. Analysis of the data revealed that physical plant assets increased approximately 14 percent over the survey period, and that public and private institutions and 2- and 4-year institutions all grew at approximately the same rates. Indebtedness on physical plant assets increased 18 percent over the period; public institutions' indebtedness increased 12 percent whereas that of private institutions rose 26 percent; and 4-year institutions' debts rose almost 63 percent whereas the indebtedness of 2-year institutions declined by 4 percent. The report also describes the survey methodology and the effects of inflation. An appendix supplies three tables displaying the data on which the interpretations are based. (PGD)

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December 1986

Physical Plant Assets and Indebtedness on Physical Plants in Institutions of Higher Education: Fiscal Years 1982-84

There is a growing concern among public and private administrators in higher education that physical plant facilities are inadequate. "We find ourselves . . . with aging facilities, buildings that are literally falling down around our ears, with equipment that is literally older than the students," according to D. Allan Bromley, Vice Chairman of the White House Science Council Panel on the Health of U.S. Universities and Colleges.[1]

In recognition of this problem, Congress appropriated $28 million in fiscal year 1985 (FY 85) and another $10 million in FY 86 to fund grants under the Academic Facilities Program, authorized by Title VII, Part B, of the Higher Education Act of 1965, as amended. This represents the first time since 1973 that funds were made available for such a purpose.

How are our colleges and universities coping with deteriorating facilities and outdated equipment? This report provides financial statistics on physical plant assets (land, buildings, and equipment) and institutional indebtedness on physical plants for FY 82 through FY 84. As such, it presents the trends and the base against which to measure postsecondary institutional response to this problem.

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[1]Associated Press, New Haven, Connecticut, March 6, 1986, reporting the preliminary release of A Renewed Partnership, a report of the White House Science Council Panel on the Health of U.S. Universities and Colleges to the Office of Science and Technology Policy, Executive Office of the President, Washington, D.C., February 1986.

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The data are from the "Financial Statistics of Institutions of Higher Education" survey, conducted by the Center for Education Statistics each fall, requesting data about the previous fiscal year. The survey is part of the annual Higher Education General Information Survey (HEGIS), which is sent to approximately 3,300 4- and 2-year colleges and universities in the United States. This report focuses on two parts of the finance survey--physical plant assets and indebtedness on physical plant facilities and capital equipment. Details about the data base and some clarifications of data elements are presented in the methodology.

Physical Plant Assets

Total physical plant assets increased 14 percent between FY 82 and FY 84--from $94.5 billion to $107.6 billion (table 1). However, the rate of increase varied by type of asset. For example, the largest growth was in the capital equipment category, which jumped 23 percent--from $21.3 billion in FY 82 to $26.3 billion in FY 84 (appendix table A). During the same period, the value of land rose 13 percent (from $5.4 billion to $6.1 billion), and the book value of buildings grew 11 percent (from $67.8 billion in FY 82 to $75.2 billion in FY 84). The current replacement value of buildings appreciated 16 percent (from $157.0 billion to $181.6 billion).

Table 1.--Total physical plant assets* of institutions of higher education, by control and level: Fiscal years 1982-84

(Amounts in billions)

Control and level	Fiscal year			Percent change, FY 1982-84
	1982	1983	1984	
All institutions	$94.5	$101.0	$107.6	13.9
Control				
Public	64.1	68.3	72.6	13.2
Private	30.4	32.7	35.0	15.3
Level				
4-year	80.8	86.3	92.2	14.1
2-year	13.7	14.7	15.4	12.3

*These data represent the book value at the end of the year for the total physical plant assets owned, rented, or used by colleges and universities. A detailed breakdown showing the components--land, buildings, and equipment--is presented in appendix table A.

Note.--Details may not add to totals due to rounding.

Public vs. Private Institutions

Although there are more private institutions of higher education, public institutions on the average are larger and have more money invested in their physical plants. Public colleges and universities hold approximately two-thirds of the physical plant assets of institutions of higher education in this country.

The rate of growth in physical plant assets between FY 82 and FY 84 was about the same in publicly and privately controlled colleges and universities: public institutions had a 13 percent gain (from $64.1 billion to $72.6 billion), while private institutions grew 15 percent (from $30.4 billion to $35.0 billion--table 1).

The rate of change varied by type of asset considered. For example, the book value of land, buildings, and capital equipment owned, rented, or used by private postsecondary institutions rose 11, 13, and 24 percent, respectively. In public colleges and universities, land values grew 14 percent, while the book value of buildings increased 10 percent, and equipment grew 23 percent (derived from data in appendix table A).

In addition, private colleges and universities demonstrated slight gains over their public counterparts in the replacement value of buildings. Private institutions showed an increase of 17 percent in this category, while the replacement value of buildings owned, rented, or used by public institutions appreciated 15 percent (derived from data in appendix table A).

4-Year vs. 2-Year Institutions

Physical plant assets are concentrated in 4-year institutions; overall, they hold almost 86 percent of such assets. This percentage has remained constant across the 3 years reported here.

Physical plant assets of 4- and 2-year institutions grew at almost the same rate between FY 82 and FY 84--14 and 12 percent, respectively (table 1). The assets of 4-year colleges and universities increased from $80.8 billion to $92.2 billion, while those of 2-year colleges rose from $13.7 billion to $15.4 billion. Similarly, the rate of growth in each of the components which comprise the total assets--land, buildings, and equipment--was almost identical in 4- and 2-year institutions.

Indebtedness on Physical Plants

Institutional indebtedness on physical plant assets increased 18 percent between FY 82 and FY 84 (from $15.5 billion to $18.3 billion) for all institutions of higher education (table 2). However, it should be noted that these figures do not include the debt assumed by States, cities, or foundations, since it is not the responsibility of the institutions to repay these obligations. Thus, the actual amount of indebtedness incurred on behalf of institutions of higher education is underreported here, particularly for public colleges and universities.

Table 2.--Balance owed on the principal at the end of the year in institutions of higher education, by control and level: Fiscal years 1982-84

(Amounts in billions)

Control and level	Fiscal year			Percent change, FY 1982-84
	1982	1983	1984	
All institutions	$15.5	$16.8	$18.3	18.0
Control				
Public	8.6	9.3	9.6	11.6
Private	6.8	7.5	8.6	26.1
Level				
4-Year	13.8	15.0	16.7	20.5
2-Year	1.7	1.7	1.6	-2.5

Note.--Details may not add to totals due to rounding.

New borrowing rose significantly--57 percent--from $1.8 billion in FY 82 to $2.8 billion in FY 84 (appendix table B). The payments made by all institutions on both principal and interest also advanced appreciably, but the overall ratio of interest paid to principal owed at the end of the year remained constant at 5.4 percent. Principal repayments, however, went up 24 percent between FY 82 and FY 84 (from $1.1 billion to $1.4 billion), exceeding interest payments, which grew 17 percent (from $843.4 million to $989.2 million).

Public vs. Private Institutions

While overall institutional indebtedness increased 18 percent, it differed considerably between public and private colleges and universities. The amount of principal owed at the end of the year by private institutions rose 26 percent between FY 82 and FY 84 (from $6.8 billion to $8.6 billion)--more than double the 12 percent increase registered by public institutions, which went up from $8.6 billion to $9.6 billion (table 2).

Even more dramatic was the difference in the rate of increase in additional funds borrowed during this period. Public colleges and universities extended their borrowing 29 percent (from $787.1 million to $1.0 billion), while private institutional borrowing jumped 80 percent (from $981.3 million to $1.8 billion--appendix table B). Payments made on the principal also advanced appreciably between FY 82 and FY 84. Repayments of principal grew 21 percent in public institutions (from $637.6 million to $772.3 million) and 28 percent in private institutions (from $501.8 million to $640.5 million--derived from data in appendix table B).

4-Year vs. 2-Year Institutions

The change in indebtedness between FY 82 and FY 84 varied considerably by level of institution. Four-year colleges and universities enlarged the indebtedness on their physical plants by more than 20 percent (from $13.8 billion to $16.7 billion), while 2-year colleges reduced their debt by almost 3 percent (from $1.7 billion to $1.6 billion).

A dramatic difference is apparent in additional funds borrowed between FY 82 and FY 84: 4-year institutions borrowed almost 63 percent more in new funds (from $1.6 billion to $2.7 billion), while 2-year institutions borrowed 4 percent less (from $135.0 million to $129.9 million--appendix table B). The difference actually occurred between FY 82 and FY 83, when 4-year colleges and universities borrowed an additional 65 percent, while new borrowing by 2-year colleges dropped 25 percent.

Physical Plant Assets Compared with Indebtedness on Physical Plants

The ratio of indebtedness to total physical plant assets in all institutions of higher education increased from 16 to 17 percent between FY 82 and FY 84 (appendix table C). In public institutions, the ratio remained fairly constant, ranging from 13.5 to 13.3 percent. In private institutions, it increased slightly, varying from 23 percent in FY 82 to 25 percent in FY 84. In 4-year colleges and universities, the ratio increased from 17 to 18 percent during this period. However, in 2-year colleges, it declined from 12 to 11 percent as their indebtedness decreased.

Methodology

The HEGIS finance survey form was sent to every 4- and 2-year institution of higher education in the HEGIS universe in the United States and outlying areas. This report, however, covers the 50 States and the District of Columbia, and excludes the outlying areas (American Samoa, Guam, Northern Mariana Islands, Puerto Rico, the Virgin Islands, and the Trust Territory of the Pacific Islands). Throughout this report, the percentages shown were calculated on the actual rather than rounded figures.

The number of institutions in the HEGIS finance survey universe, the response rate, and the number of institutions on which the data were based (including those whose data were imputed, by fiscal year) are shown on the next page.[2]

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[2]Two general methods of imputation (estimation) have been used:
(a) if the prior year's data were available for a nonresponding institution, these data were adjusted using national averages; or
(b) if the previous year's data were not available, current data were used from peer institutions selected for location (State or region), control, level, and size (enrollment) of institution.

Fiscal year	Institutions in universe	Response rate (percent)	Number on file
1982	3,294	90.7	3,294[1]
1983	3,325	87.2	3,287[2]
1984	3,330	86.5	3,302[3]

[1]Data were imputed for 306 nonrespondents as detailed in footnote 2, page 5.

[2]Data were imputed for 386 nonrespondents as detailed in footnote 2, page 5. Data were not imputed for 38 nonrespondents new to the survey universe.

[3]Data were imputed for 409 institutions on the basis of FY 83 data, and imputed for 13 institutions through a peer selection process as detailed in footnote 2, page 5. Data were not imputed for the remaining 28 institutions new to the HEGIS finance survey universe in FY 83 that did not respond in either FY 83 or FY 84.

Among the data requested in the HEGIS finance survey are the values carried on the institutions' accounting records for the land, buildings, and capital equipment they own, rent, or use. These comprise the book value (the purchase price) of their total physical plant assets.

Also requested is the current replacement value of buildings, an approximation of their market value (the most recent appraisal value or current insurance replacement value). Institutions are instructed to exclude plant values which are a part of endowment or other capital fund investments in real estate and to exclude construction in progress from both the book value and replacement value of buildings. Completed buildings are to be reported as additions when accepted.

Institutions of higher education are asked to provide information about the indebtedness on their physical plants as shown in the liability section of their plant fund balance sheet. They are instructed to include indebtedness on auxiliary enterprise facilities, as well as educational and general facilities. However, the indebtedness on physical plants reported on the HEGIS finance survey does not constitute the total amount of indebtedness incurred on behalf of colleges and universities, particularly public institutions. Generally speaking, most public postsecondary institutions are authorized to issue revenue bonds (which are self-liquidating), but not general obligation bonds. The bulk of the bonds issued for the construction of academic facilities for public colleges and universities are general obligation bonds issued by the State, or in the case of community colleges, sometimes by the city, county, or region. It is then the responsibility of the State or other entity to repay the obligation, usually from their general appropriations.

In many cases, the buildings constructed are owned by the State or other entity but are leased back to the institution, which may then purchase them for a nominal fee upon expiration of the lease. In addition, many postsecondary institutions--both public and private--set up foundations which may also be used to finance capital construction, although this is not their primary purpose.

When the debt is assumed by a State, city, or foundation, the figures do not appear in the institution's accounting records. These funds are not reported on the HEGIS finance survey form, since it is not the responsibility of the institution to repay the obligation. Thus, the amount of indebtedness incurred on behalf of institutions of higher education is underreported, particularly for public colleges and universities. What is reported for public institutions is largely for the construction of facilities for auxiliary enterprises, such as athletics, bookstores, dining halls, and dormitories, which generate revenue used to repay the indebtedness.

Effect of Inflation

The increases in four relevant price indices between FY 82 and FY 84 are shown below. These may be used to interpret the changes in physical plant assets and associated institutional indebtedness.

Price index	Percent increase, FY 1982-84
Boeckh Construction Index[1]	14.0
Higher Education Price Index (HEPI)[2]	12.1
HEPI[2] Capital Equipment Subindex[3]	6.3
GNP Implicit Price Deflator[4]	8.4

[1]Compiled by the Boeckh Division of the American Appraisal Company, Inc., for apartments, hotels, and office buildings and reported in Construction Review, published monthly by the U.S. Department of Commerce.

[2]Compiled by Kent Halstead and presented in U.S. Department of Education, National Institute of Education, Inflation Measures for Schools and Colleges. Washington, D.C. U.S. Government Printing Office, 1983; updated yearly by Research Associates of Washington, 2605 Klingle Road NW., Washington, D.C. 20008.

[3]A weighted average of four Producer Price subindices compiled by the U.S. Department of Labor, Bureau of Labor Statistics (40 percent of BLS 12-2, commercial furniture; 30 percent of BLS 11-4, general purpose machinery and equipment; 25 percent of BLS 11-93, office and store machines and equipment; and 5 percent of BLS-11, machinery and equipment).

[4]Compiled by U.S. Department of Commerce, Bureau of Economic Analysis.

As the indices show, the overall increase in physical plant assets (14 percent) kept pace with inflation. But--with one notable exception--the changes in assets did not represent real increases once inflation is taken into account. The exception is in the capital equipment category, which far outpaced inflation. Overall, the book value of equipment in the Nation's colleges and universities increased 24 percent between FY 82 and FY 84, while the increase registered in the Higher Education Price Index (HEPI) capital equipment subindex during the same period was only 6 percent.

The overall increase in indebtedness on physical plants (18 percent) was greater than inflation. In contrast, new borrowing--which increased 57 percent overall--vastly exceeded the inflation factor, as did the increase in total indebtedness in private institutions (26 percent).

For More Information

Computer tapes or special tabulations containing these and other HEGIS survey data, by fiscal year, may be obtained by contacting:

U.S. Department of Education
Office of Educational Research and Improvement
Information Services
Information Systems and Media Services
555 New Jersey Avenue NW.
Washington, D.C. 20208-1327
Telephone: (202) 357-6520

Appendix

Table A.--Physical plant assets of institutions of higher education, by control and level of institution: Fiscal years 1982-84

(Amounts in thousands)

Control and level of institution	Book value of physical plant assets, end of year				Current replacement value of buildings
	Total	Land	Buildings	Equipment	
			Fiscal year 1982		
All institutions.....	$94,516,512	$5,402,339	$67,794,877	$21,319,297	$156,991,860
4-year institutions.....	80,805,479	4,320,684	58,004,847	18,479,950	137,295,449
2-year institutions.....	13,711,033	1,081,655	9,790,030	2,839,347	19,696,411
Public institutions.....	64,135,720	3,615,134	45,436,733	15,083,853	104,683,336
4-year institutions.....	51,272,541	2,605,873	36,263,821	12,402,847	86,399,604
2-year institutions.....	12,863,179	1,009,261	9,172,912	2,681,006	18,283,732
Private institutions.....	30,380,792	1,787,205	22,358,144	6,235,443	52,308,525
4-year institutions.....	29,532,939	1,714,811	21,741,025	6,077,102	50,895,845
2-year institutions.....	847,853	72,394	617,119	158,341	1,412,680
			Fiscal year 1983		
All institutions.....	100,992,841	5,889,080	71,519,718	23,584,042	165,038,516
4-year institutions.....	86,329,747	4,696,268	61,141,557	20,491,921	144,575,577
2-year institutions.....	14,663,094	1,192,812	10,378,161	3,092,121	20,462,939
Public institutions.....	68,270,801	3,984,302	47,707,013	16,579,486	107,274,035
4-year institutions.....	54,477,929	2,876,236	37,938,310	13,663,382	88,157,895
2-year institutions.....	13,792,872	1,108,066	9,768,703	2,916,104	19,116,140
Private institutions.....	32,722,040	1,904,778	23,812,705	7,004,557	57,764,482
4-year institutions.....	31,851,818	1,820,032	23,203,246	6,828,540	56,417,683
2-year institutions.....	870,222	84,746	609,459	176,017	1,346,799
			Fiscal year 1984		
All institutions.....	107,640,113	6,109,746	75,220,765	26,309,602	181,550,765
4-year institutions.....	92,237,795	4,906,540	64,441,238	22,890,018	159,801,826
2-year institutions.....	15,402,318	1,203,206	10,779,527	3,419,584	21,748,939
Public institutions.....	72,605,169	4,121,409	49,926,252	18,557,508	120,181,575
4-year institutions.....	58,108,917	2,989,013	39,778,485	15,341,418	99,820,049
2-year institutions.....	14,496,252	1,132,396	10,147,767	3,216,090	20,361,526
Private institutions.....	35,034,944	1,988,336	25,294,513	7,752,094	61,369,190
4-year institutions.....	34,128,878	1,917,526	24,662,752	7,548,599	59,981,778
2-year institutions.....	906,066	70,810	631,761	203,495	1,387,412

Note.--Details may not add to totals due to rounding.

Table B.--Indebtedness on the physical plants of institutions of higher education, by control and level of institution: Fiscal years 1982-84

(Amounts in thousands)

Control and level of institution	Indebtedness		Payments		Ratio of interest paid to balance owed on principal, end of year* (percent)
	Balance owed on principal, beginning of year	Additional principal borrowed during year	Payments made on principal during year	Interest payments on physical plant indebtedness	
			Fiscal year 1982		
All institutions.....	$14,858,677	$1,768,350	$1,139,409	$843,432	5.4
4-year institutions.....	13,185,432	1,633,352	998,178	748,754	5.4
2-year institutions.....	1,673,245	134,998	141,231	94,678	5.7
Public institutions.....	8,488,346	787,052	637,634	451,242	5.2
4-year institutions.....	6,949,091	661,343	505,386	365,235	5.1
2-year institutions.....	1,539,255	125,709	132,248	86,007	5.6
Private institutions.....	6,370,331	981,298	501,775	392,190	5.7
4-year institutions.....	6,236,341	972,010	492,791	383,519	5.7
2-year institutions.....	133,990	9,288	8,984	8,671	6.5
			Fiscal year 1983		
All institutions.....	15,598,304	2,797,212	1,645,616	921,900	5.5
4-year institutions.....	13,822,443	2,696,496	1,494,932	825,821	5.5
2-year institutions.....	1,775,861	100,716	150,684	96,079	5.6
Public institutions.....	8,747,059	1,277,944	758,836	491,568	5.3
4-year institutions.....	7,101,921	1,192,794	619,333	403,075	5.3
2-year institutions.....	1,645,138	85,150	139,503	88,493	5.6
Private institutions.....	6,851,245	1,519,269	886,780	430,332	5.8
4-year institutions.....	6,720,521	1,503,703	875,599	422,745	5.8
2-year institutions.....	130,724	15,566	11,181	7,587	5.6
			Fiscal year 1984		
All institutions.....	16,905,917	2,784,151	1,412,752	989,154	5.4
4-year institutions.....	15,255,362	2,654,288	1,257,355	884,678	5.3
2-year institutions.....	1,650,555	129,863	155,397	104,476	6.4
Public institutions.....	9,392,101	1,018,581	772,286	530,637	5.5
4-year institutions.....	7,871,103	906,414	626,657	433,869	5.3
2-year institutions.....	1,520,998	112,167	145,629	96,768	6.5
Private institutions.....	7,513,816	1,765,570	640,466	458,518	5.3
4-year institutions.....	7,384,260	1,747,875	630,698	450,810	5.3
2-year institutions.....	129,556	17,695	9,768	7,708	5.6

*The balance owed at the end of the year is equal to the sum of the balance owed on the principal at the beginning of the year and additional principal borrowed during the year, minus payments made on the principal during the year.
Note.--Details may not add to totals due to rounding.

Table C.--Indebtedness on physical plants compared with physical plant assets of institutions of higher education, by control and level of institution: Fiscal years 1982-84

(Amounts in thousands)

Control and level of institution	Balance owed on principal, end of year*	Total physical plant assets, end of year	Indebtedness as a percentage of total physical plant assets
		Fiscal year 1982	
All institutions.....	$15,487,618	$94,516,512	16.4
4-year institutions.....	13,820,607	80,805,479	17.1
2-year institutions.....	1,667,011	13,711,033	12.2
Public institutions.....	8,637,763	64,135,720	13.5
4-year institutions.....	7,105,046	51,272,541	13.9
2-year institutions.....	1,532,717	12,863,179	11.9
Private institutions.....	6,849,855	30,380,792	22.5
4-year institutions.....	6,715,561	29,532,939	22.7
2-year institutions.....	134,294	847,853	15.8
		Fiscal year 1983	
All institutions.....	16,749,900	100,992,841	16.6
4-year institutions.....	15,024,006	86,329,747	17.4
2-year institutions.....	1,725,894	14,663,094	11.8
Public institutions.....	9,266,166	68,270,801	13.6
4-year institutions.....	7,675,380	54,477,929	14.1
2-year institutions.....	1,590,786	13,792,872	11.5
Private institutions.....	7,483,734	32,722,040	22.9
4-year institutions.....	7,348,626	31,851,818	23.1
2-year institutions.....	135,108	870,222	15.5
		Fiscal year 1984	
All institutions.....	18,277,315	107,640,113	17.0
4-year institutions.....	16,652,294	92,237,795	18.1
2-year institutions.....	1,625,021	15,402,318	10.6
Public institutions.....	9,638,395	72,605,169	13.3
4-year institutions.....	8,150,858	58,108,917	14.0
2-year institutions.....	1,487,537	14,496,252	10.3
Private institutions.....	8,638,920	35,034,944	24.7
4-year institutions.....	8,501,436	34,128,878	24.9
2-year institutions.....	137,484	906,066	15.2

*The balance owed at the end of the year is equal to the sum of the balance owed on the principal at the beginning of the year and additional principal borrowed during the year, minus payments made on the principal during the year.
Note.--Details may not add to totals due to rounding.